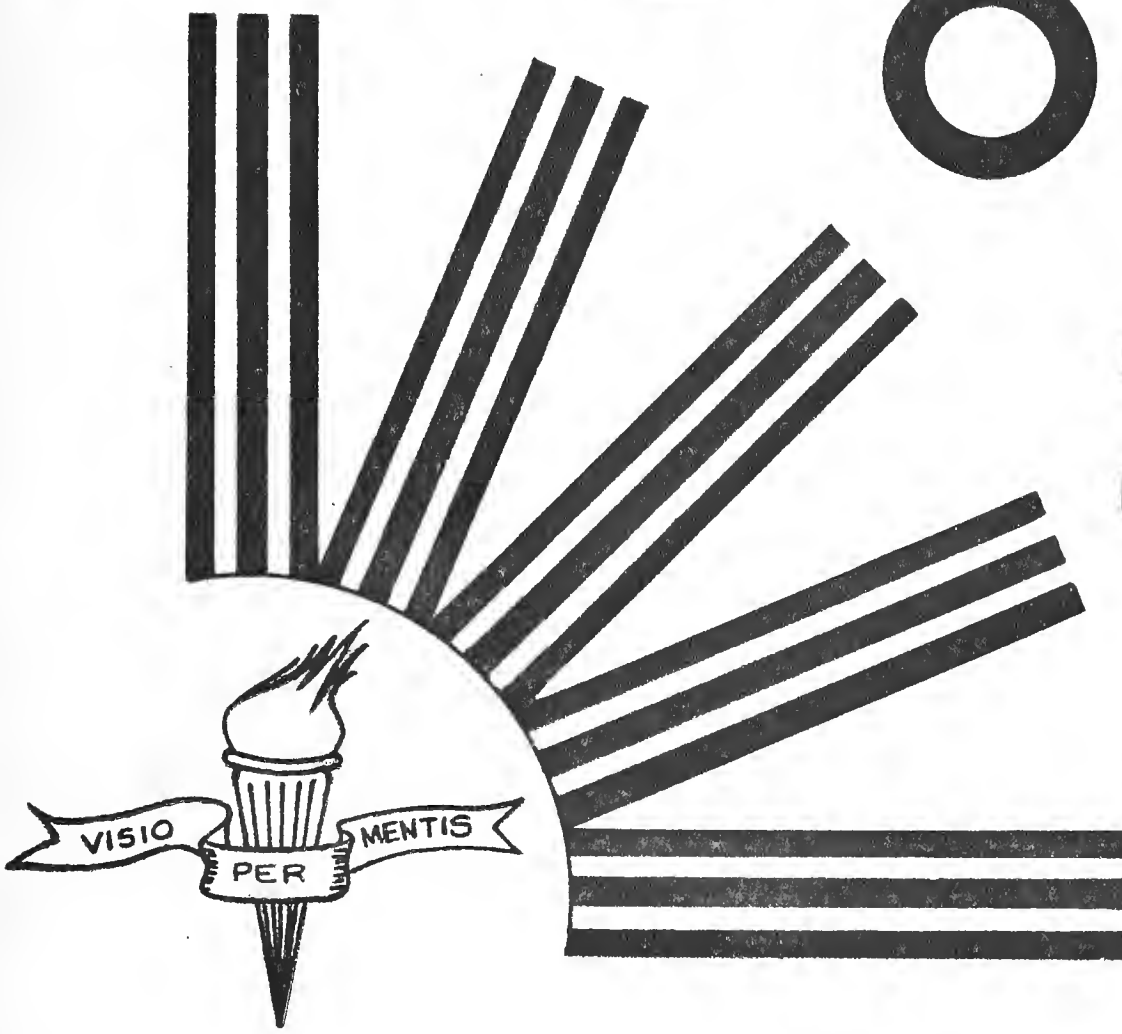
THE SCOPE

MARCH-APRIL, 1956



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VOLUME XXVII NUMBER 4

FEATURES

An Evaluation of Stereopsis Tests

By LOUIS ANAPOLLE, F.A.A.O.*

BOSTON, MASS.

(Reprinted from the "NEW ENGLAND JOURNAL OF OPTOMETRY", May, 1955)

Stereopsis is the term applied to third degree fusion or the appreciation of depth perception. According to the late Dr. Richard G. Scobee, noted Ophthalmologist associated with the Washington University School of Medicine, in his book "Oculo Rotary Muscles": "If a patient can accurately locate objects in his environment with respect to their distinction both from himself and from each other, and if this discrimination is present to a relatively high degree, he is said to have third degree fusion or depth perception." Hence, the highest degree of single binocular vision is stereopsis which is the mental fusion of two slightly dissimilar retinal images from disparate points in space.

Development of the Sense of Stereopsis:

Acording to Dr. Arnold Gesell of the Gesell Institute of Child Development at New Haven, Conn., a child is not born with the visual sensation of third dimension. The infant is visually conscious of only bat surfaces in the early months of life. At first, even the mother's smiling face appears as a pleasant light colored image to the infant's eyes. The appreciation of third dimension usually starts at approximately the thirty-second week of life when the child learns through the coordinated action of his hands and eyes the meaning of space. This appreciation of form and depth perception then continues to develop in the normal case during the pre-school years of life and reaches its maximum degree of proficiency at about the age of eight years. owever, many patients who are daily being examined in your offices will show a relatively poor appreciation of tsreopsis inasmuch as their fusional mechanisms probably never quite developed this high degree of binocularity.

Factors that Govern the Appreciation of Stereopsis:

1. Visual Acuity:

It is not essential for a patient to have uncorrected 20/20 vision in each eye to appreciate third dimension. In fact, the highest degree of stereopsis is usually found in those cases of low or moderate ametropia.

2. Normal monocular fixation and projection habits:

Once again, I refer you to Gesell's research on the development of hand and eye coordination habits in early infancy.

3. High degree of fusion amplitude:

The patient who measures a high degree of stereopsis usually posses good quality first, second, and third degree of fusion wHith amplitude of duction power. There should be a minimum of suppression tendencies in either eye.

4. Accommodation:

This factor is very important when the object of regard is at a finite distance closer than one meter.

5. Convergence:

This factor causes changes in the angular relationship between the two eyes in the act of triangulation or convergence.

6. Physiological diplopia.

7. Binocular parallax.

8. Other contributory factors:

These factors would include: size of the retinal image, aerial perspective, motion of the head of the patient or object in space, shadows and light from other bodies in relationship. The foregoing contributory factors are usually the monocular clues that help the one-eyed patient to judge his sense of depth or perspective.

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EDITOR'S NOTE — Dr. Anapolle graduated from MCO in 1936; has been associated with Boston Dispensary Eye Clinic and Mass. Optometric Clinic and is currently president of the Boston Society of Optometrists.

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Photomicrography

By DUKE DRUCKER

Briefly stated photomicrography, or microphotography is the technique of taking pictures through a microscope.

The applications of photomicrography are widespread in all fields where the magnified examination of materials is necessary, especially in the fields of chemistry, biology, and anatomy.

Choice of equipment is limited only by one's pocketbook. I have found that the 35 mm single lens reflex type of camera very versatile, easy to manipulate, and generally medium priced ($75 up). The microscope adapter will cost anywhere between $10-19, depending on whether it's new or used. A light meter is a very handy gadget to have around. It will save you wasted eyposures in the long run because it eliminates much trial and error when you're making an exposure chart. The meter used in this case was a G.E. DW68, with the hood off.

I experimented with Anscochrome daylight type 35mm film, which has an ASA rating of 32. The results were good.

To determine my exposures, I took a reading at the stage of the microscope with the condensor up and the iris diaphragm wide open. Using a 10 watt bulb with a light blue filter across it, in the substage lamp, this gave me the maximum light available to a specimen at any time.

I placed the camera and adapter on the microscope. Next I took the lens from the camera and opened it up wide to f 2.8 Then I held the lens next to the substage lamp with the LIGHT meter behind it until I had gotten the same reading in foot candles that I had before, when I took a reading of the light at the stage of the microscope. Equal readings will give you equivalent exposure times.

Having found the intensity through the camera lens which equalled the stage reading; I took light readings of all the other f stops.

Using the meter's calculator I translated the light readings into time units of exposure for each f stop. Below is the chart I made and followed.

(for ASA 32 only)

EXPOSURE (SEC.)	EQUIV. f STOPS	FOOT CANDLES
1/3	2.8	15.0
0.6	3.5	13.0
1	4	12.0
1¼	4.5	9.0
3	5.6	7.0
5	6.3	5.0
10	8	4.0
30	11	2.5
50	16	1.5

For the exposure of 1/3 and 0.6 sec., you can substitute 1/5 and 1 2 sec. respectively.

Taking a reading for each slide at the stage, I found the equivalent exposure time on the chart. The best shots were taken from the equivalent range of f4.5 through f8.

At first focusing might be a bit tricky. It is necessary to remember that you do not focus through the microscope but through the cam-

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SPACE PERCEPTION

Some Physiological and Psychological Aspects

By ROBERT E. BANNON*

SOUTHBRIDGE, MASS.

(Continued from the January-February, 1956 Issue of "THE SCOPE")

(III.) PSYCHOLOGICAL ASPECTS:

It is quite apparent to anyone who considers the matter, hat vision and the visual reactions are ultimately an affair of the mind. It is not only the image that is registered on the retina or in the occipital cortex that determines the visual reactions. It is the perception that results from all the associative and organizing processes of the mind, some innate and some acquired, that regulates what is seen. As Woodworth puts it: one does not see the stimuli, nor the various clues; he sees the objects themselves. The following section attempts to summarize how this is accomplished.

The borderline between physiology and psychology is rather indefinite and difficult to distinguish. It may seem from purely physiological considerations, that what one sees is dependent primarily upon the way in which the visual organ, as a receptor, is stimulated. An object is seen as red or blue depending upon whether the light that strikes the retina is of as large when the amount of retinal surface stimulated is large. An object is seen as a circle or as a rectangle because the area of retinal stimulation is circular or rectangular in form. An object is seen straight ahead or to the right or to the left depending upon the retinal area stimulated. Our experience confronts us with long or short wave length. An object is seen the knowledge that this is not always true. There is no such simple relation between the nature of the retinal images and what we "see." In many instances, one sees the shape and position of objects in other than their true form and place.

A round table appears circular even when one views it from a sitting position, in which case the retinal images are not circular but elliptical in form. Similarly, a round clock or plate appears circular even when viewed from an obique angle which causes the retinal images to be oval, father than round. Looking down a street lined with telephone poles one "sees" that the more distant poles are the same size as the nearer ones even though the retinal images of the more distant poles may be a half or a quarter the size of those of the nearer poles. One percieves correctly in spite of the diminished images. As a man approaches one from a distance of 12 yards to a nearer distance of say 6 yards, the observer's retinal image of the approaching man's height, as well as width, doubles and the image as a whole increases four times in size. Nevertheless, one perceives the approaching man to be of constant size. Visual experience coincides with the known size and form of objects rather than with the data supplied by the retina.

Generally, one tends to see objects "as they really are" or more correctly, as he has in the past and in various ways, aided by his other senses, learned them to be.

It is obviously not true, that retinal stimulation alone accounts for visual perception in its experienced form. Boring quotes Bishop Berkeley as having said, as long ago as 1709, that "the estimate we make of the distance of objects considerably remote is rather an act of judgement grounded on experience than on sense." Likewise, Helmholtz (1866) stated that the idea of space itself must be developed by experience.

In order to attempt to discover the explanation of how one's visual experience differs from that due to physiological factors alone, one must consider some of the other sensory channels. When an experience includes an element which has not been due to the organ of vision alone, is must be concluded that some other faculty has been operative also.

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It was suggested long ago that experiences of distance and depth arose from muscular movements. That is, the way in which one senses the amount of space between himself and an object is to move the body through space to reach the object of regard. The movement will furnish a given amount of sensation of muscle effort and to varying distances will correspond various amounts of this motor experience. Thereafter the memory of such effort becomes associated with the visual impressions in the same way that touch or temperature memories become blended with certain images. Expressions such as "a day's journey," "a stone's throw," etc., typify this rationality. Likewise, handling experiences (tactile sense) are basic to visual percepts of the third dimension of physical bodies. This empirical doctrine maintains that the perception of visual space is dependent upon muscular activity and sensations derived from the contraction of muscles and from changes thus produced in various parts of the body. The empiricists claim that if all muscular activity and the memory of such activity were banished, stimulation of retinal elements could never become associated with the conception of space and distance.

While there is general agreement that learning is needed before *accurate* spatial localization in *certain environments* is possible, nevertheless this does not refute entirely the nativistic doctrine. However, before this matter is discussed further, it will be helpful to review some of the important factors involved in the judgement of idstance and of space.

In the perception of distance and of depth one must distinguish between the perception of depth differences, i.e., how much one object appears in front of or behind another, and in the absolute localization by which the actual distance from observer to object is estimated. As mentioned previously, binocular vision through the phenomenon of stereopsis provides the most accurate means of relative depth discrimination. owever, stereopsis is sometimes dampened or even negated by a preponderance of certain monocular clues in the environment.

The more important of these monocular clues are:

(a) *Overlay*—by which the images of near objects overlap and tend to hide the images of more distant objects.

(b) *Perspective*—which depends upon the fact that objects of equal size have smaller retinal images when at a distance rather than nearby. An example of linear perspective is the apparent convergence of parallel lines that recede in the distance, viz., railroad tracks. Details of known objects are seen more readily when near rather than when distant. Thus, the size of retinal image related to known size of object provides the clue for estimation of distance.

(c) *Aerial perspective*—through which the edges of objects at a distance are less clear than those nearby. Moreover, the more distant objects appear bluer (cooler) in color due to atmospheric haze. Near objects appear brighter with more color saturation than do more distant objects.

(d) *Light and shadow*—which give clues as to shapes and relative positions of objects.

(e) *Parallax*—which results from head movements; for the relative alignment of more distant objects less changes in position occur from a given head movement than that which occurs for nearer objects. This clue to depth perception is very strong and the precision of depth estimation by means of it is nearly as great as that of stereoscopic depth perception.

(f) *Height*—whereby objects seen above others are judged to be more distant.

(g) *Accommodation and convergence*—to a small extent, through the proprioceptive sense arising from the focusing and verging muscles of the eyes, these factors may provide a clue for gross differences in distance and depth in near vision.

Although the stimuli from one's environment are imagined on the retinas in two dimensions, much like a picture projected on a screen, one readily perceives the third dimension of depth by virtue of the learned clues, mentioned above, combined with the innate binocular processes of retinal correspondence, local sign and stereopsis. The marvelous in-

fluence of experience and adaptability to the environment is illustrated by Stratton's classical experiment. Stratton wore lenses which inverted the entire visual field and, although it required a few days, he became "adjusted" to his new visual sensations so that he was able to localize objects in their proper positions.* Experiments conducted at the Dartmouth Eye Institute, in which the author participated, also showed that a new relationship between subjective (experimental) and objective (physical) space could be learned. These experiments consisted of wearing mangnifying (size) lenses which caused a geometric disparity in the relative size of the ocular images resulting in a distortion (tipping) of binocular visual space. This tipping, often as much as 30 degrees, was very apparent at first and caused considerable difficulty in orientation. However, this tipping disappeared in a few days—especially in familiar environment. In an unfamiliar environment the tipping would reappear and, more important, in test conditions where perspective clues were eliminated, such as on the horopter apparatus, almost the full amount of tipping could always be measured. These latter facts support the stability of retinal (sensorial) correspondence.

From a clinical point of view, it must not be concluded that because one can adjust his experiences to new conditions, such "compensation" will be comfortable. It is believed that somatic symptoms, as well as such conditions as "conflicts, frustration and fatigue" (Bartley), may be the result of the necessity of establishing a new relationship between one's environment and one's visual perception.

An interesting possibility of understanding further the essence of the visual perception of space is provided by Luneburg's recent (1947) monograph on the "Mathematical Analysis of Binocular Vision." Since Euclid's time (ca. 300 B.C.), a number of properties of actual space have been established by the axioms and postulates of geometry. Nevertheless, many careful experiments have demonstrated that Euc,lidean geometry gives only an approximate explanation of certain phenomenon in the field of visual space perception. For example, no

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STEREOPSIS [Cont.]

Importance of Testing the Degree of Stereopsis:

1. As an adjunct to your refraction technique, it is wise to ascertain the degree of binocular development of your patient's eyes.

2. To determine the prognosis of a tentative orthoptic case for your own treatment of a heterophoria or heterotropia or for the advisability of referring the case to another practitioner.

3. To test applicants for various dangerous occupations. According to Hedwig Kuhn, M.D., in her book *Eyes in Industry,* all applicants for the following occupations should be tested for stereoscopic ability: crane operators, moving machine operators, electric truck and tractor drivers, feeding machine operators, and structure and maintenance workers.

4. To test applicants for driver's licenses. Stereopsis is already a visual requirement in several states, namely New Hampshire and North Carolina. In due time, it will become a prerequisite for all drivers upon application for their license in the majority of the states of the Union.

5. To test your patients who may inquire of you as to their stereoscopic ability with respect to their particular hobby or avocation. Many patients are interested in stereo photography, art, three-dimensional movies, and possibly in the future, 3-D television. We may also include in this category the sports enthusiasts who enjoy an evening of bowling or an afternoon of tennis, golf, or baseball for their particular relaxation. In fact, judgement of stereopsis is very important in all activities where hand and eye coordination is an combined act.

6. To test applicants for the various branches of the Armed Forces, particularly the U. S. Army and Navy Air Corps.

Various Tests for Determining the Presence of Stereopsis:

In discussing the individual tests for the measurement of stereopsis, I realize that I am stepping on very dangerous ground. Many claims have been made by the various manufacturers of ophthalmic equipment as to the ease with which the degree of stereopsis can be measured with their respective instruments or slides. Various claims have also been mentioned as to the measurement of the percentage (quantity) of stereopsis, but as yet no official standards have ever been set up by the ophthalmic profession or by the U. S. Bureau of Standards. It behooves each examiner to state only the results of the individual test on the particular instrument or slide that was used for the test.

However, it is my point of view that it is wise to investigate all of the available tests for the measurement of stereopsis, for each method has its merit and its faults. And only by personal evaluation can the individual practitioner decide for himself which test should be used in his office routine examination.

The various tests for the detection of the appreciation of depth perception can be divided into the following groups:

1. Stereograms: these are geometric patterns or drawings of stereoscopic figures. Typical examples are the Wells Stereo charts.

2. Stereographs: these are actual photographs taken with a stereo (3 D) camera. Typical examples are the Keysone slides.

3. Vectographs: these are photographic films coated on both sides with aspecial emulsion containing a polaroid 3 D material. Typical examples are the Bausch & Lomb Ortho Fusor slides.

4. Anaglyphs: these are targets composed of red and green overlapping figures which when viewed through red and green spectacles, appear in three-dimensional relief. Typical examples are the 3 D comic books, the Brock R-G dings with the Stereo Motivator.

5. Manual tests: these are tests that require hand and eye coordination ability such as the Howard-Dolman or Mumey tests.

An Inventory of Testing Apparatus:

In testing your patient's stereoscopic ability, you may use as simple a test as a hand chart, a hand operated gadget, a hand stereoscope, or one of the more elaborate ophthalmic instruments.

1. Hand Chart: Wirt Stereotest—Three Dimension Co., Chicago, Ill.

   This test is based on the vectograph prin-

★ CONTINUED ON NEXT PAGE

ciple and can be employed by hand use of the patient or attached to reading rod.

2. Stereoscope:

Wells Cards (Series E 1-10) stereograms
Bausch & Lomb Stereo card (geometric design)
D. C. Heath Stereo card (geometric design)
Keystone basic stereo card (D B 6)
Keystone stereograph (0 33 & 0 34)

3. Telebinocular:

Same test as listed for use with hand stereoscope.
Keystone Aviators Unit Series (D C 31-53)

4. Tel-Eye-Trainer or Ortho Trainer:

Same slides as section 2 and 3

5. Omni — Trainer:

Same slides as section 2 & 3

6. Ortho Fusor Sets: Bausch & Lomb Optical Co.

Vectograph principle

7. Rotoscope: American Optical Co.

Geometric patterns. Slides 15-26

8. Verhoff Stereoptor: American Optical Co.

This a hand operated device for the quantitative testing of acuity and dependability of binocular stereopsis. The usual misleading size differences of the retinal images of the target elements make binocular parallax the only correct evidence of relative depth perception.

9. Howard — Dolman Test:

This instrument is the one used principally by the armed forces as criteria for the measurement of stereoscopic ability. It is a box-like instrument, one foot high and wide by three feet in length, which has two rods set apart laterally at the zero position of a measuring scale. he patient is instructed to pull on the attached cords so as to line up the two vertical rods when they appear to be in juxtaposition. This test is taken at a twenty foot distance. The objection to this test in the average office is that it is too cumbersome and demands the full distance for accuracy.

10. Renshaw Tachistoscope Vectograph Slides:

There is an excellent series of three dimensional slides graded in quantity of stereopsis for both children and adult patients. These are projected on an aluminized screen and must be viewed through polaroid 3 D spectacles.

11. Keysone Multi-Stereo Tests:

This new series of stereopsis tests, which is a part of the new Professional Performance Tests issued by the Keystone View Company, consists of eighteen (18) stereographs which includes three testing cards and fifteen training cards. According to their research department, these tests have set a definitely higher standard for critical measurement of stereopsis. his unit represents the first set of stereopsis tests that is calibrated from 1300 to 10 second degrees of an arc. Though the test is vaguely similar to the Howard-Dolman test, all hand and eye coordination has been completely eliminated as a factor. All extraneous clues have been carefully eliminated so that nothing but distance perception of stereopsis is tested.

Photomicrography [Cont.]

era, on the ground glass plate. For very fine detail it is very helpful to use the auxiliary lens or magnifier mounted over the viewer.

Although this procedure was outlined for color film, it will hold up for any type of film. If you use black and white films, and plan to use filters, use the same procedure to find your exposure chart. Then multiply in your filter factor.

For additional details consult the following:

1) Photomicrography in Theory and and Practice — C. P. Shillaber, John Wiley & Sons Inc., New York;, Chapman & Hall, Ltd., London, 1944.

2) Photography Through the Microscope — Eastman Todak Co., Rochester, N. Y., 1st Ed., 1952.

3) Amateur Photomicrography With Simple Apparatus — A. Jackson, The Focal Press, London, 4th Ed., 1945.

Johnny—"My father's a doctor. I can be sick for nothing."

Jimmy—"Well, mine's a preacher, so I can be good for nothing."

PI OMICRON SIGMA

By LEONARD DWORKEN

On Friday, March 23, the day before the Spring recess commenced P.O.S. Fraternity held its annual election of officers. Candidates, most of whom had been nominated the previous week, held their hopes high in expectation of being elected to a fraternal office. The elections were carried out by closed ballots and tabulated by the Vice Chancellor and Chancellor.

First on the agenda was the election of a new Chancellor. Jack McCaulley was elected by acclamation to this office. Jack Served as Scribe this past year and handled the job with such great efficiency that he attained a great deal of admiration from his fellow brothers. The office of Vice Chancellor went to Macy Sezzin. Macy worked hard all year on the various social functions held by the fraternity and also was a popular winner. Forrest Seavy was elected to the position of Coordinator of the Exchange. Forrest is one of the quieter members of the fraternity. He is a firm believer in the proverb, "Action speaks louder than words," and is intelligent enough to handle financial matters with a high degree of competency.

Our new Scribe will be "Big Mammo"

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Space Perception [Cont.]

theory based on Euclidean geometry has explained adequately the results of Hillebrand's "Alley Experiment."

Luneburg has concluueded that many phenomena of spatial perception can be explained mathematically by the non-Euclidean hyperbolic geometry of Lobachevski. This may provide a new concept of binocular vision and space perception in that a metric, or "measuring stick" for our visual space sense may be forthcoming.

Fry (1950) has also made use of mathematics to outline the basic principles for relating perceived space to physical space and to show how one can proceed in selecting a set of parameters for describing physical and visual space. Fry treats visual space as Euclidean and his analysis seems less complicated than that of Luneburg.

Boeder has presented and clarified Luneburg's analysis as several recent professional mettings. He, and many others, believe that Luneburg's and Fry's work may prove to be one of the most important theoretical contributions to the theory of binocular spatial perception since the time of Helmholtz. Cnfortunately, the mathematical explanations of space perception will not appeal to many because the intricacies of the mathematics necessary are not familiar to the average ophthalmic practitioner.

(IV.) SUMMARY: Vision, one of the five senses, is the means by which one is made aware of his environment. Due to the eyes' optical structure and the retinas, light in varying lengths impinges upon the nervous system. The different wave lengths of the incoming radiations are translated into collor differences. The differences in their number is translated into brightness differences.

In monocular vision, the various parts of the environment viewed are assigned particular relative distances to each other in accordance with the observer's knowledge of the relative sizes and distances of other objects within the field of view. In binocular vision, the directional patterns are combined. The disparity of differences between the two patterns provides data from which the three-dimensional spatial values can be assigned to the various parts of the pattern.

The exact nature of these spatial values is

determined by the innate corres,ponding receptors in the two eyes and their inter-connections in the brain. Having translated the given patterns into color value and the spatial relationship, learned by experience, a picture is constructed in consciousness. It is this picture which one sees—rather than reality itself. One is not conscious of the incoming stimuli but of the picture in consciousness which is projected outward into space.

"What an object is" and "where it is" is determined largely by the function of vision. Whether or not one's vision is adequate can be judged by how closely the picture perceived conforms to reality and how successfully it enables one to deal with his environment. The act of seeing, depending as it does upon both *innate* and *acquired* (learned) factors; upon reception, translating,, memory, attention, experience, interpreting and projection, is not exclusively a physiological nor a psychological process but is a wonderful synthesis of both these processes.

Since aniseikonia is a *binocular* anomaly characterized by unequal size images, it constitutes an additional disparity to that normally present in binocular single vision. This additional disparity causes incorrect localization of objects in space *as judged by stereopsis*. However, it should be borne in mind that stereopsis is not the only faculty by which we judge the position of objects, in space. As pointed out previously, there are many empirical monocular clues which assist, or may even predominate, in determining the relative localization of objects in space.

These points serve to explain why some individuals under certain conditions are not aware of any spatial disturbance despite a significant degree of aniseikonia. When the environment is relatively free from stereoscopic clues, or when the individual is able to suppress stereoscopic clues in preference for monocular clues, no subjective difficulty is spatial localization is experienced. On the other, hand, if the surroundings abound with stereoscopic clues, incorrect spatial localization will be experienced by those who have a significant degree of aniseikonia.

It is a rather common clinical experienc,e to have certain patients report various distortions in space perception with their new glasses. These distortions often disappear after the new correction has been worn constantly for a few days. This "adaption" to normal surroundings indicates that the individual is responding to the learned monocular, rather than to binocular stereoscopic clues. This "adaptation" does not mean that the individual has been able to make a psysiological compensation for his aniseikonia or has altered in any way the innate correspondence, or disparity, of his ocular images.

Of practical concern to the ophthalmic practitioner, as well as to his patients, is whether or not the "adaptation," mentioned above, can be made without discomfort and without impairment of efficiency. The fact that this is possible in many cases is attested by practitioners who have had patients with obvious aniseikonia but who acknowledge no discomfort or symptoms of impairment. Likewise, there are patients with significant degrees of ametropia and/or heterophoria who manifest no discomfort or impairment. On the other hand, there is a sizable group of patients who cannot make the "adaptation" to uncorrected aniseikonia, ametropia and/or heterophoria without symptoms or severe discomfort or inefficiency.

The variations of different individuals in response to the same or similar stimuli are due not only to differences in physical health and emotional stability ,but, also, to such factors as the nature of the visual environment and the nature of the occupational visual requirements in one individual's case as contrasted to another. In any event, it should be realized that if an individual disregards or suppresses binocular stereoscopic clues, the accuracy of his binocular stereoscopic spatial localization is impaired and there is ever present a basis for conflict between the responses to the monocular and binocular clues which can be troublesome and productive of further symptoms eventually.

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*This does not mean that Stratton actually saw objects right side up but merely that he was able to behave, or to use his new visual impressions, more in accordance with the actual location of objects in his peculiar field of vision.

Pi Omicron Sigma [Cont.]

Finklestein. Marv is one of the most likeable men in the fraternity. He is always willing to do his best at any task he undertakes. Tony Rascatti was elected as Corresponding Secretary. Tony is capable of handling any job, and is well-equipped to handled his new office. Howie Coleman, the present Coordinator of the Exchange, was elected Sargeant-at-Arms.

It is customary each year to select a Grand Chancellor from among the members of the faculty. Dr. Farnum has been selected for this honor. One of the oldest members of P. O. S. as well as of the faculty, he is sure to be an asset to the fraternity. Mr. Arnold, the freshman mathematics professor, was selected as faculty adviser.

On Wednesday evening, April 18, the P. O. S. annual banquet will be held at Steuben's. At this time the newly elected officers will be sworn into their respective offices and the new members of the fraternity will receive their pins.

A special vote of thanks should go to Marsh Cohen, who as Chancellor did a tremendous job during this past year. We wish Marsh and all the other seniors of the fraternity the greatest of success in the years that follow.

Husband: "Maybe we can figure out what the problem is . . . ."

Wife: "I already know what the problem is: it's having too much month left over at the end of the money."

* * * *

"But, doctor," said the worried patient, "are you sure I'll pull through? I've heard of cases where the doctor has made a wrong diagnosis, and treated someone for pneumonia who has afterward died of typhoid fever."

"Nonsense," sputtered the affronted physician. "When I treat a patient for pneumonia, he dies of pneumonia."

* * * *

Notice in a Scotch church: "Those in the habit of putting buttons instead of coins in the collection plate will please put in their own buttons and not buttons from the cushions on the pews."

"I wish that DARN eye would stop ACCOMMODATING."